

[54] **OPTICALLY CLEAR SILICONE COMPOSITIONS CURABLE TO ELASTOMERS**

- [75] Inventors: **Keith E. Polmanteer; Harry L. Chapman**, both of Midland, Mich.  
 [73] Assignee: **Dow Corning Corporation**, Midland, Mich.  
 [21] Appl. No.: **309,302**  
 [22] Filed: **Oct. 7, 1981**

**Related U.S. Application Data**

- [63] Continuation-in-part of Ser. No. 156,003, Jun. 3, 1980, abandoned.  
 [51] Int. Cl.<sup>3</sup> ..... **C08L 83/06**  
 [52] U.S. Cl. .... **523/210; 523/107; 523/113; 523/209; 523/212**  
 [58] Field of Search ..... **523/107, 209, 212, 210**

**References Cited**

**U.S. PATENT DOCUMENTS**

2,786,042	3/1957	Iler .....	260/37 SB
2,870,108	1/1959	Nickerson .....	524/261
2,870,109	1/1959	Nickerson .....	524/266
3,036,985	5/1962	Daudt .....	260/37 SB
3,228,741	1/1966	Becker .....	351/160 R
3,408,325	10/1968	Hittmair et al. ....	528/28
3,474,064	10/1969	Hittmair et al. ....	260/37 SB
3,624,023	11/1971	Hartlage .....	260/37 SB
3,915,924	10/1975	Wright .....	260/37 SB
3,996,187	12/1976	Travnicek .....	260/37 SB
3,996,189	12/1976	Travnicek .....	260/37 SB
4,001,168	1/1977	Maass et al. ....	524/863
4,008,198	2/1977	Krohberger et al. ....	260/37 SB

**FOREIGN PATENT DOCUMENTS**

53-117051	10/1978	Japan .	
805102	11/1958	United Kingdom .	
807454	1/1959	United Kingdom .....	523/212

922871 4/1963 United Kingdom .

**OTHER PUBLICATIONS**

40 Page Cabot Cororation Bulletin 2313/774/10M Entitled "Cab-O-Sil ® Properties and Functions", See pp. 8 and 11 for Silica Filler Information.  
 Report No. ER-CR-76040 Entitled "Material Studies for Protective Masks" by R. Chaffee, Report Dated Sep., 1976 on Gov'T. Contract No. DAAA15-6-9-C-0291 to Edgewood Arsenal, Md. pp. 1-3, 8-9, 77-104, 217-221, Particularly See pp. 77-83 on Refractive Index Matching.

*Primary Examiner*—Wilbert J. Briggs, Sr.  
*Attorney, Agent, or Firm*—Richard E. Rakoczy

[57] **ABSTRACT**

Optically clear silicone compositions comprising 100 parts by weight of at least one polydiorganosiloxane and 15 to 120 parts by weight of a hydrophobic reinforcing silica filler wherein substantially all of the surface-treated silica filler particles are sufficiently small in their largest dimensions such that a uniform 2.54 mm thickness of the composition possesses a haze value of less than 4% and a luminous transmittance value of at least 85% according to ASTM D1003-61. The refractive index of the polydiorganosiloxane does not have to be matched with that of the silica filler to obtain optically clear compositions. The haze value of certain of such compositions does not increase by more than 1% per 2.54 mm thickness when the composition is heated from 23°±2° C. to 100°±5° C. Optionally, curing agents and other additives can be present in the compositions. Optically clear cured elastomers useful as lenses or tubing can be prepared from such elastomers. Methods for the preparation of such compositions are also claimed.

**76 Claims, No Drawings**